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AGAVE WASHINGTONENSIS AND OTHER AGAVES FLOWERING
IN THE WASHINGTON BOTANIC GARDEN IN 1897.

BY J. N. ROSE.

The Botanic Garden at Washington contains a large and valuable collection of agaves. This is said to compare favorably with the choice collection at the Kew Gardens, though the number of species is perhaps smaller. Unfortunately the collection has never been critically studied. After a somewhat casual examination of a number of the plants, it seems to me that there must be several undescribed species, or else some of them vary considerably from published descriptions. Mr. William R. Smith, the Director of the Garden, has long been collecting these plants as well as caring for those sent in by various government collectors. During the winter of 1897 five species flowered and were identified by me. This, at first, seems a small number, yet when we remember that only twenty-five species have flowered at Kew during the last fifteen years, it is seen to be a very fair percentage. One of these (*A. Washingtonensis*) appears to be undescribed. Two (*A. albicans* and *A. Sartorii*) are among the more common species, and two (*A. attenuata* and *A. potatorum*) are rarely seen in flower.

AGAVE WASHINGTONENSIS Baker & Rose sp. nov.

In January, 1897, an agave labeled *A. Ghiesbreghtii* flowered for us. I soon saw that it did not belong to that species, nor was I able after careful study to place it with any described species. Specimens were submitted to Mr. J. G. Baker of Kew, who reported that he could not match it and that it was probably new. After further study it was decided to describe and publish it as new. Since the history of the plant has been lost and its habitat is unknown,

the specific name *Washingtonensis* has been adopted. The leaves form a dense rosette and are of a dark green color. The spike was fully 5 feet long and somewhat curved. Although belonging to the *Littaea* section, the flowers are borne in clusters of three to six. They are greenish with purplish margins to the segments. During the summer the plant was put out in the grounds and received little or no attention. A few capsules matured and seeds have been sent to Kew and the Missouri Botanical Garden, and some have been planted here. It is hoped that enough plants will thus be raised to supply all collectors of this genus. In September a few bulblets were produced on the old flower stalk. Although the plant was supposed to be dying, it was taken into the greenhouse for the winter and in January, 1898, sent out an axillary bud. The species is therefore polycarpic. It may be technically described as follows:—

Acaulescent; leaves numerous (20 to 25), forming a dense rosette, spatulate-oblong, $2\frac{1}{2}$ feet long, 3 to 4 inches wide near the middle, tapering to two inches at base, dark green, hardly glaucous, not banded, margined throughout with a brown horny edge furnished with small irregular deltoid, sometimes hooked teeth 1 to 2 lines long; end spine short and pungent; peduncle 2 feet long, more or less covered with long acuminate brownish bracts; spike about 5 feet long, more or less curved; bracts often subtending 3 to 6 flowers; ovary 9 lines long; perianth tube very short or wanting; segments oblong, 10 lines long, 3 lines broad, greenish, the margins purplish, obtuse; stamens under 2 inches long; style longer than the stamens.

It belongs to Mr. J. G. Baker's group *Rigidæ*. Probably a native of Mexico.

AGAVE ALBICANS.

A plant of this species flowered here in 1896 and another began to flower May 1, 1897. Both of these are choice plants. Although this species may be classed among the smaller agaves yet it is a showy one. It has a comparatively short pole, but the flowers are large, in a rather dense cluster. The foliage is quite handsome, being of a

pale glaucous green and composed of a dense rosette of leaves. Mr. Baker in his Handbook of Amaryllideae states that the segments of the flower are greenish-yellow, but later he says, in the Botanical Magazine, that they are "green outside, brown inside." In our specimens the upper half of the segments is brown outside and on the inside they are brown throughout. This species has flowered but once at Kew and twice in our gardens. The following are the only instances with date of flowering of which I have knowledge: (1) In the Belgium Garden, Count d'Osselghem, 1867. (2) At Blueberry, Mr. Justus Corderoy, 1887. (3) At Kew in 1891. (4) In the Botanic Garden at Washington, Mr. Smith, 1896. (5) In the Botanic Garden at Washington, Mr. Smith, 1897.

The flowers much resemble in color and shape those of *A. Haseloffii*. The stamens mature several days before the style. In our specimen the spike was nearly three weeks in developing all its flowers. Mr. Watson in speaking of the Kew plant says it lived after flowering, developing two lateral growths. I have observed these lateral growths in both of our specimens.

The plant which flowered in 1897 has four strong buds, while the other one has eight lateral buds. The species is, therefore, as Mr. Watson has shown, polycarpic.

Our specimens may be described as follows: —

Acaulescent; leaves about 30 in a dense cluster, 15 inches long, oblanceolate, 3 to $3\frac{1}{2}$ inches broad above the middle, tapering above into a weak black spine less than one inch long, the margin with small black teeth, pale and glaucous on both sides; peduncle stiff, nearly erect, $2\frac{1}{2}$ feet long, clothed with long attenuate green bracts; spike 15 inches long, rather dense-flowered; flowers including ovary $1\frac{1}{4}$ to $1\frac{1}{2}$ inches long, including the stamens 3 inches; style developing several days after the stamens; segments of flower thick, ovate, purplish within and at the tip without.

AGAVE SARTORII.

A. Sartorii is a native of Mexico and Guatemala and was introduced into cultivation about 1863. It has flowered at Kew, first in 1877, and frequently since. The specimen at

Kew, according to Mr. W. Watson, has flowered eleven times and now has a stem five feet high. We have the species in the Botanic Garden under the names both of *A. Sartorii* and *A. Noackii*. The one bearing the latter name has a clearly marked band down the center of the leaves while in the other plant the leaves are scarcely if at all banded. The specimen marked *A. Sartorii* has long been growing in the Botanic Garden and flowered for the first time in February and March, 1897. The plant is said to be 15 years old. It differs from the description of *A. Sartorii* in its narrower hardly banded leaves, shorter spike, and smaller flowers. A good habit sketch and detail drawing is to be found in the Botanical Magazine, t. 6292 (1877).

This is said to be the only species known which develops its inflorescence from lateral buds. The specimen in the Botanic Garden which recently flowered, is now sending out two new shoots. It may be described as follows:—

Stem 1 foot high, clothed with old leaves; leaves 15 to 20, 2 feet long, 1 to 1½ inches broad near the middle, slightly narrowed toward the broad (3 in.) and thick (1 inch) base; end spine weak; margin with minute brown teeth; peduncle 2½ feet long, glaucescent, bracteate, strongly curved at top; bracts resembling those of *A. attenuata*, the lower ones 4 inches long, serrulate, pale green and long-attenuate; spike a foot long, each bract subtending 2 flowers; flowers very small; ovary 4 lines long; tube of perianth 3 lines long, lobes 4 to 5 lines long, greenish-yellow; stamens and style twice as long as perianth; filaments inserted near the top of the tube.

AGAVE ATTENUATA.

A magnificent specimen of this stately agave bloomed at the Washington Garden early in 1897. This is the first time the species has flowered here, and so far as I can learn the first time also in this country. The plant was bought in Such's Nursery by Mr. Smith more than twenty years ago. The plant was nearly two months in developing its spike and was in bloom nearly three months. Only a few capsules set seed, and the plant has since died.

This species never produces but a single flowering spike and is therefore monocarpic. It sends off many little

suckers from near the base of the stem, which either break off or may be removed and transplanted. I have so far seen no bulbs developing in the inflorescence as sometimes occurs in certain other species.

The previous history of our plant is unknown, but it undoubtedly came from Mexico, the home of the species. It differs from all the figures and descriptions in having a perfectly straight pole or spike of flowers instead of a curved one. In all other respects the plant differs little from the descriptions of *A. attenuata*.

In our specimen the woody stem below the crown of leaves is four feet high and one foot in circumference at thickest point, which is a short distance below the crown. It is marked with quadrangular scars, three to four inches wide by one inch deep. The crown is truly a noble sight, consisting as it does of twenty or more immense leaves and measuring nearly six feet in diameter. The leaves are at first erect, but when mature they are spreading and in age drooping, the lower ones gradually falling off, leaving the peculiar scars referred to above. The larger are from two and a half to three feet long, from six to eight inches broad at the widest point, which is about two-thirds of the distance from the base, gradually tapering to near the base, where they are three or four inches wide, while they rapidly taper upward into long weak spines. All are very glaucous on both sides, while the margin is entire and thin, at first whitish, but in age brownish. During the flowering period the larger leaves drop off, leaving only ten to twelve, which are not more than two inches in width and two feet long. The peduncle is only about one foot long, and is very thickly covered with large leaf-like bracts, somewhat appressed, but spreading at the base, and acuminate. The flowering spike is very dense and fully five feet long; the flowers are in pairs subtended by bracts; these bracts are green, attenuate, horizontal, the lower ones being five inches long. The flowers are mostly sterile, the perianth tube very short, the stamens much longer than the petals.

The species was first described by Salm Dyck in 1834. It was afterward (1862) described by Sir William Hooker as *Agave glaucescens* in the Botanical Magazine, and is sometimes found in cultivation as *A. spectabilis*. It has been several times illustrated as will be seen from the references appended.*

The plant was introduced into cultivation about 1834. It flowered first at Kew in 1861, and has flowered several times since. It has been widely distributed in gardens, and will doubtless be frequently found flowering in the future.

The above account was published in part in Garden and Forest for 1897.

AGAVE POTATORUM.

Our specimen bloomed in June after I had left the city for the summer and, therefore, the flowers were not examined. The leaves correspond fairly well with the description. This is the only time this species has flowered here. It flowered at Kew in 1894 and in Paris about 1875.

Our plant was still alive February 1, 1898, but it is gradually dying and the species is doubtless monocarpic, as has been noted by Watson.

The leaves were 2 to $2\frac{1}{2}$ feet long at the widest point. The peduncle was 6 feet long excluding the inflorescence, which was only $1\frac{1}{2}$ feet long with very short branches.

EXPLANATION OF PLATES OF AGAVE.

Plate 29. *Agave Washingtonensis*,— habit, reduced.

Plate 30. *Agave Washingtonensis*,— a, Leaf, $\frac{2}{3}$ natural size,— b, c, sections of same, natural size,— d, flower, natural size.

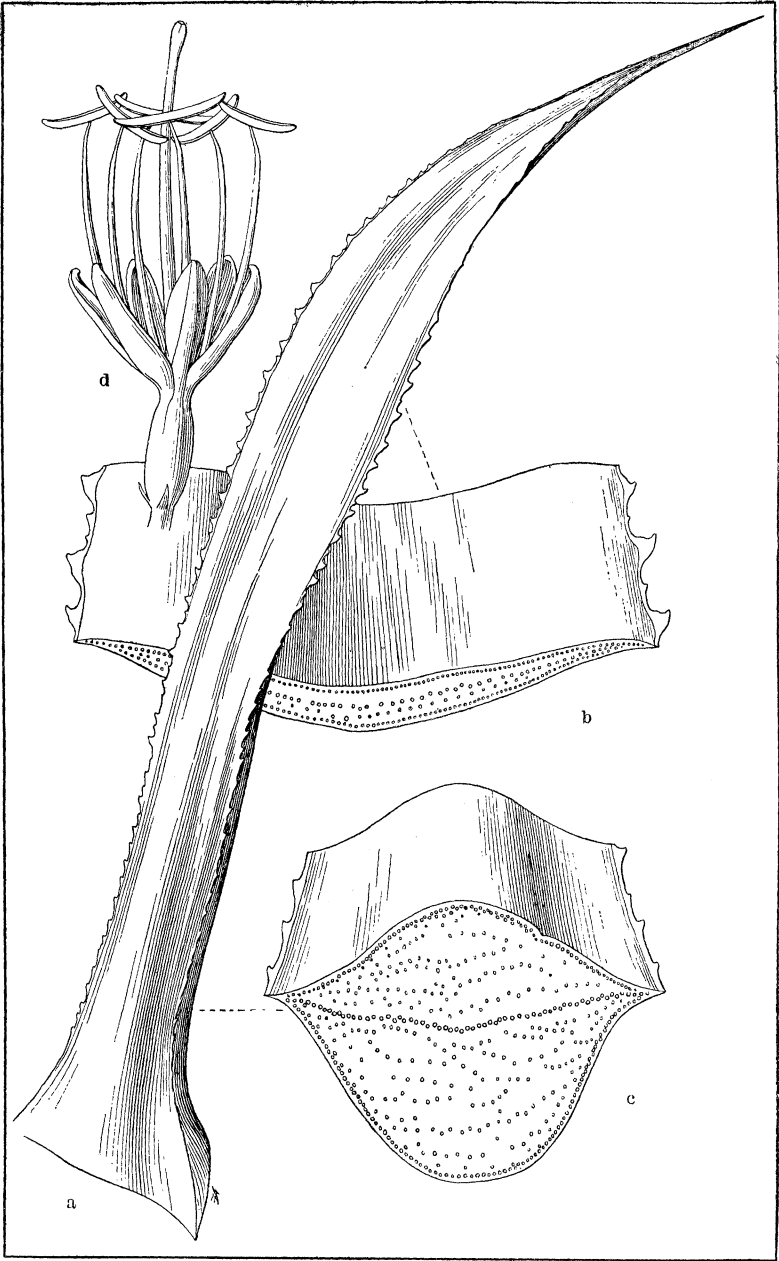
Plate 31. *Agave attenuata*,— habit, reduced.

* The most important references are the following: *Agave attenuata* Salm Dyck, Hort. Dyck. 303. 1834. — Rev. Hort. 1875: 149. f. 31, 32.— Gard. Chron. ii. 8: 748. 1877.— Garden and Forest 10: 95. 1897.

Agave glaucescens Hook. Bot. Mag. 88: t. 5333. 1862.— Gard. Chron. ii. 2: 219. f. 53, 55. 1887; iii. 8: 560. 1890; iii. 17: 457. f. 63, 64. 1895.



AGAVE WASHINGTONENSIS.



AGAVE WASHINGTONENSIS.



AGAVE ATTENUATA.